TRUE SOURCE

User Manual

Alternating/Static Air Mattress & Pump Replacement System

--- for Hospital / Home care / Nursing homes ---

Model：TS-508

IPX0 No AP/APG

 Copyright © 2010 by TRUE SOURCE Technology Co., Ltd.

Table of Contents

1. Safety Criteria 3
2. Warnings 3
3. Product Functions 4
4. Product Setup Contents 5
5. Product Features 5
6. Installation 6
7. Initial Inflate Method 7
8. Emergency CPR Deflate 7
9. Power Unit Settings Contents 7
10. Routine Maintenance and Cleaning 10
11. Storage 10
12. Troubleshooting 11
13. Technical Specifications 12
14. Warranty 13

1. Safety Criteria

CE EN60601,EN60601-1,EN 60601-1-2 , FCC Part 18-Class B

Type BF Applied part

Attention: consult Accompanying documents

Operating instructions

No AP/APG IPX0

Medical Device Classification: Class I

2. Warnings

The product is only intended to be used as an auxiliary device. The manufacturer does not have the absolute responsibility and obligation to guarantee its full effects.

✸ Power Unit:

* Do not open the power unit without guidance to prevent danger.
* Do not insert items into any opening of the power unit.
* Do not drop the power unit.
* Do not use the power unit in places exposed to water, liquids, oil, smoke, and flammable chemicals.
* Use fuses as marked: **T1A / 250V**.
* The product is contraindicated to anesthesia procedures and is only indicated for use by the user in normal conditions.
* This the power unit is not AP/APG protected.

✸ Air Mattress:

* Do not shift to CPR mode during normal use.
* Prevent the patient from placing his/her head or neck between the mattress and the side rail.
* Do not use sharp or pointed objects since this will damage the mattress or use high temperature objects since this may accidentally destroy the mattress.

* Do not use the mattress in places exposed to water, liquids, oil, smoke, and flammable chemicals.
* The product is contraindicated to anesthesia procedures and is only indicated for use by users in normal conditions.
* This the air mattress is not AP/APG protected.

3. Product Functions

Purpose: The product is for the purpose of aiding the prevention of pressure ulcers and effective treatment of patients.

Pressure ulcers are commonly known as bedsores. They occur when there is damage caused by pressure (or shear) or friction to the skin, or even the underlying tissues, muscles and bones. Pressure ulcers are a common problem of patients suffering from long-term physical immobility including those who are inflicted with spinal cord injury, bedridden for a long-term, not clearly conscious, inflicted with bladder or bowel incontinence, diabetes, skin fragility, physical weakness or malnutrition. It is an extremely complex task to treat pressure ulcers once they occur. In a minor case, the wounds take weeks to heal. In a severe case, sepsis, amputation or death may occur. This not only damages health, but also is a burden to and waste of medical resources. Using the mattress replacement system can aid the prevention of pressure ulcers and effective treatment of patients.

The support surface can be alternately inflated and deflated with two rows of coupled air hoses that are connected to the power unit and activated in the **Alternating Mode**.

◆**Alternating Mode:** This process allows effective arrangement in a way that a single area of the body remains in a completely pressure free and lifted state for a fixed period. This allows body tissues to be temporarily relieved of pressure and blood to circulate smoothly around the tissues. This in turn heals, improves and prevents the occurrence of pressure ulcers.

◆In tune with the altered **Weight Setting**: The power unit automatically adjusts and shifts to the most appropriate pressure in tune with the altered weight setting for the user.

◆Select **Cycle Time**: The power unit also adjusts the Inflate and Deflate frequency during the cycle time. The user may select a cycle frequency of higher comfort depending on his/her state such as asleep or awake.

◆Also has an optional **Static Pressure Mode**: The air hoses of the whole system do not alternate. The power unit automatically provides a different static pressure value according to the existing altered weight setting. This provides stable and mild internal pressure for the Reduce function.

◆When caregivers are providing nursing, they naturally want the mattress to be flat and hard to make nursing easier. Hence, the thoughtful design of the **Nursing** button can directly maximize the internal pressure for the convenience of nursing.

◆It is our unique design, one function with **Auto Dual Mode** to advance using ambit. The function owns Alternating and Static Mode to alternate working to be taken at one-hour intervals. The power unit provides special function to content user.

◆The safety alarm system of the power unit provides the **Low Pressure Alarm**. The alarm is automatically activated when the pressure shortage of the mattress threatens the user's safety. Especially for non a standard medical bed or the other foam mattress under the air mattress.

◆There is also the **Power Failure Alarm**. The alarm automatically notifies and reminds caregivers to provide emergency handling and protect the patient when there is a sudden power failure or the power cord is accidentally disconnected during the normal operation of the system.

◆In addition, the specially designed **Memory Revert**: This allows the power unit to resume the previous setting status before the power outage when the power is resumed and saves caregivers the trouble of repeating the same setting procedure.

◆ The **Lock/Unlock** button is specially designed for setting protection in order to prevent the user from accidentally changing the already set status.

◆The power unit for the TS-50x is designed as a "**digital pressure control system**." Unlike its analog control counterpart, it provides more accurate settings and the best and most complete protection for the user by constantly monitoring the existing.

4. Product Setup Contents

1. One the power unit
2. One the air mattress (Include coverlet)
3. One the power cord
4. One the user manual

5. Product Features

Enhanced Design Features of the Power Unit

1. The TS-508 integrated MPU is a "digital total control system" that has multiple smart options.
2. The control panel is of an enclosed panel design in order to prevent pathogenic bacteria from entering the system and heighten the risk of cross-contamination in repeated use and from maintenance personnel.
3. For hanging, the safest iron material is used for hanging hooks and its withstanding ability is far higher than plastic material.
4. For shock absorption, the deflation pump inside is equipped with a specially designed suspension shock absorption system and a foot mat is provided outside the unit in order to reduce the shock when the unit is in contact with the patient's bed.
5. The compact size feature: The system is of a compact size, making it easy for placement and storage and taking into account the streamlined system appearance and practicality.
6. The cotton air filter is to be replaced outside. Therefore, the replacement can be done without opening the unit.
7. Double external fuse holders allow the unit to provide better safety protection.

8. The specialized power management with an independent power cord and a master power switch on the side can better ensure safety.

Design Features of the 8” air mattress (standard equipment)

* 8” Air cells – 21pcs totally: It narrow distance for air cell to next to increase the user’s comfort and security.
* Patent Design of CPR Quick Valve:

  When it is necessary to perform CPR, the chest part needs to be deflated extremely quickly. Simply follow the standard simple operation by “pulling down”.
* Head End 3 Hoses No Alternating Design:

  Front 3 Hoses No Alternating Design ensures no alternation at the head end to increase the user’s comfort and security.
* Base Design:

  The four-sided standing base uses securing cells. The positions of suitably provided binding cells make it easier to secure the mattress in the bed. The elastic bands on the four sides at the back of the base are used to secure the four-sided flat of hospital bed.
* Coverlet Design:

  The light moisture permeable, elastic fabric with a costly PU membrane is the main surface in contact with the patient. The purpose is to prevent shear and friction from damaging the patient’s skin and inflicted areas because the fabric has the advantage of a proprietary medical fabric that is not easily crinkled. It is not widely used mostly due to consideration of costs. We use the fabric because functionality is taken into prior account.

* The bottom of the 8” air cells are independent and stable chambers, the purpose is to prevent the patient to bottom out.

* 2” foam mattress for option:

  (Replace original standard medical bed to avoid if patient’s height is over the side rail)

6. Installation

Step 1: Place the 8” air mattress evenly on the hospital bed. (Replace the overlay of the hospital bed). The end with a connector to the power unit is the feet end.

Step 2: Check if the securing position of the air cells is centered. Secure the 8” air mattress to the four-sided flat of hospital bed with the elastic bands on the four sides at the back of the air mattress.

Step 3: Hang the power unit on the panel at the feet end.

Step 4: Connect the air hose at the feet end of the mattress to the air outlet of the unit.

Step 5: Connector the power cord to the AC Inlet of the power unit.

Step 6: Plug the power cord of the power unit to a socket with power supply.

Step 7: Turn “ON” the power switch on the side of the power unit, “Stand by” of the orange

indicator is on, than press the button to “ON” and the green indicator is on. Air starts to enter the hose in a few seconds.

Step 8 Select a setting according to the patient’s weight.

Step 9: See” Power Unit Settings Contents” to select setting for your need. .

Step 10. Initial inflate, please wait until all the air-cells are inflated by at least 2/3 of their volume (approximate 10mmHg) or for 50 minutes before the user is allowed to lie on the mattress.

7. Initial Inflate Method

1. Wait until the power unit slowly inflates the mattress. However, initial inflation takes at least 50 minutes before the user is allowed to lie on the mattress.
2. When air cells are completely deflated, it is recommended to inflate the mattress by connecting an external pump with the hose for quick inflation. When the air cells are inflated over 2/3, reconnect the hose to the power unit before the user is allowed to lie on the mattress.

   (The inflation tool maybe can be purchased from the dealer.)

8. Emergency CPR Deflate

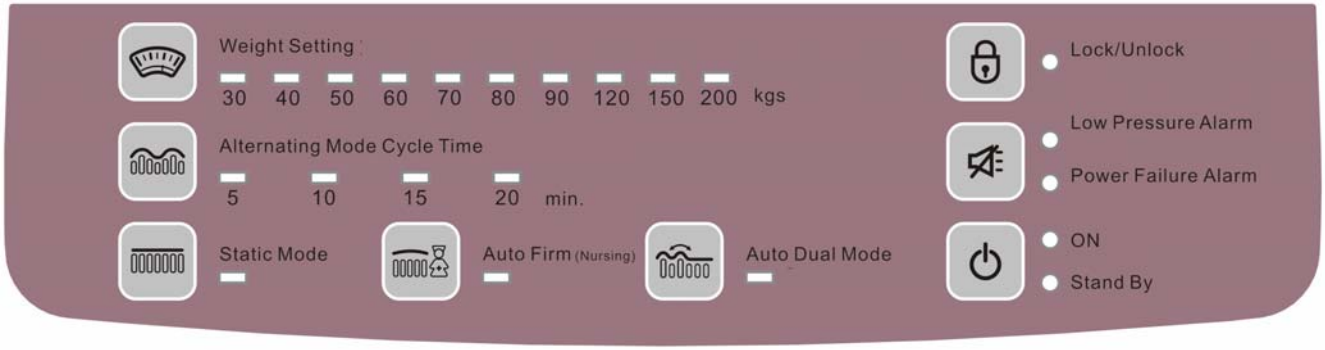
A. Emergency CPR Deflate: **Pull open the CPR lid.** (When the patient lies down, pull down hard on the plastic piece marked with CPR that drops from the chest position on the right side. Then, pull down the CPR lid for instant quick deflation.)

B. Remember to resume the CPR lid for the Resume Function, otherwise it may lead to the danger of incomplete inflation.

C. Pull open the CPR lid to deflate non-alternating air cells for storage .

*Patent design No.# M347104 & ZL 200820136935.2

9. Power Unit Settings Contents



Button Function Area

(1) ON/Stand By Button:

This is an alternate selection button for the “on/stand by “status of the power unit.

. Press the button to “ON” when starts to operate.

(2) Weight Setting Button:

Select a setting according to the patient’s weight (decimal round up).

User Weight Limited in 30~200Kg. (for 8” air mattress)

(3) Alternating Mode Cycle Time (Initial setting in” 5”)

Alternate selection between 5,10,15,20 minute cycle times.

(A sample of select in 5, this means that every five minutes is devoted respectively to inflation or deflation.).

(for long time seat, it can increase weight setting value)

(4) Static Button:

the Static Mode that puts the entire mattress in a static state without alternation. The power unit automatically provides a different static pressure value according to the existing altered weight setting. This provides stable and mild internal pressure for the reduce pressure function. Press the button when necessary.

(for long time seat, it can increase weight setting value)

(5) Auto Firm (Nursing) Button:

During nursing, it can be difficult to turn a patient and nurse if the mattress is too soft. This can harden the mattress in the quickest way for easy nursing. However, after 30 minutes, the unit will forcefully resume the setting before the button is pressed in order to protect the patient from the risk of developing pressure ulcers because the mattress becomes too hard. Press the button when necessary.

(6) Auto Dual Mode Button

It is our unique design, one function with Dual-Mode to advance using ambit.
The function owns Alternating and Static Mode to alternate working to be taken at one-hour intervals. For Example, the first hour work in Alternating Mode, the second hour turn to Static Mode, and the third hour return to Alternating Mode, ……as above. And be able to change setting under the mode.

(for long time seat, it can increase weight setting value)

(7) Lock/Unlock Button:

The button can lock the existing set status. Press again to unlock. (However, On/Stand By Button and Nursing Button cannot be locked with this button.)

(8) Audible Mute Button:

The alarm becomes audible when Low Pressure Alarm or Power Failure Alarm alerts problem occurrence. The alarm can be muted with this button when it is necessary to turn off the alarm sound.

LED Indicate Area

(a) ON/ Stand By Indicate:

When the green indicator is on, this means that the power unit starts to operate. When the orange indicator is on, this means that the unit stands by and does not operate.

(b) Weight Setting Indicate:

Select the green indicators of 30,40,50,60,70,80,90,120,150,200 Kgs. (for TS-508),

(TS-505=30,40,50,60,70,80,90,110,130,150 Kgs.)

(c) Alternating Mode Cycle Time Indicate:

Select the green indicators of 5,10,15,20 minute cycle times.

(d) Static Mode Indicate:

The green indicator is on, this means that the Static Mode is activated.

(e) Auto Firm (Nursing) Indicate:

When the green indicator is on, this means that the Nursing Button is activated. However, after 30 minutes, the unit will forcefully resume the setting before the button is pressed in order to protect the patient from the risk of developing pressure ulcers because the mattress becomes too hard.

(f) Auto Dual Mode Indicate:

When the green indicator is on, this means that the Auto Dual Mode is activated.

(g) Lock/Unlock Indicate:

When the orange indicator is on, this means that the Lock Function is activated. When it is off, this means the “unlock” state.

(h) Low Pressure Alarm &Power Failure Alarm:

The indicators do not turn on during normal operation. However, when the orange indicators are on, each means that either the Low Pressure Alarm or the Power Failure Alarm occurs.

10. Routine Maintenance and Cleaning

The Power Unit:

1. Avoid using the unit when the air is poor. Do not smoke especially to prevent nicotine and greasy tar-like substance from entering the unit and resulting in the deterioration of internal pipes and the need for frequent replacement of the air cotton filter.
2. Thoroughly wipe down the dust or smear stuck on the exterior of the unit with a dry cloth and neutral detergent or the 70%-75% medical alcohol. it is recommended to clean the pump once a week.. (Caregivers must wear gloves and masks and protected with disinfection.)
3. An air purifier can also be used to maintain the air quality.
4. Replacement of the air cotton filter: it is recommended to replace the filter once a month. (Please purchase the filters from the dealer.)

The Air Mattress:

1. Thoroughly wipe down the coverlet, air cells and base with a dry cloth and neutral detergent or the 70%-75% medical alcohol. (Caregivers must wear gloves and masks and protected with disinfection.)
2. Keep the coverlet even to prevent the formation of horizontal shear resulted from crinkles and the tightened skin.
3. Do not wash the air cell, please wipe down it only. Improper handle for cleaning and hygienic control for the system will cause cross-infection.

11. Storage

★ **How to store the Power Unit**

1. **It is necessary to turn off the power switch in side panel , unplug the power cord.**
2. Disconnect the power unit and the power cord; disconnect the power unit and the hose at the feet end of the mattress.
3. Put the power unit and the power cord in the box and place in a dry place.
4. When the power unit is put away and not in constant use, it is necessary to switch it on for 3 hours at regular intervals to lengthen its life.
5. **Follow the national requirement to dispose the power unit**

★ **How to store the Air Mattress**

1. Pull down the CPR lid for instant quick deflation.
2. Clean the mattress.(Caregivers must wear gloves and masks and protected with disinfection.)
3. Roll up the mattress and the connectors.
4. Place in a dry place.

12. Troubleshooting

Problem	Inspection Procedure	Possible Solution
1. Power unit does not operate.	1.1) Check if the two ends of the power cord are safely connected to the power unit and the socket.	1.1) Confirm if the wall socket has power supply.
	1.2) Check if the power switch on the side of the power unit is switched to “ON”.	1.2) If not, switch to “ON”.
	1.3) Check if the fuse has burnt out or not properly installed.	1.3) Turn off the power and check the fuse.
2. Power unit is working, but mattress is not inflating.	2.1) Check if air comes out of the power unit and if the connector is properly connected.	2.1) If the unit operates normally but no air comes out, it is possible that the power unit has something wrong inside and needs repair.
	2.2) Check if the CPR lid falls off.	2.2) Repair or replacement is needed if the lid is damaged.
	2.3) Check if the mattress connector is bent or falls off.	2.3) Repair or replacement is needed if the connector is deformed and cannot be restored or the material is not in its normal state.
	2.4) Check if the air hose is damaged.	2.4) Repair or replacement is needed if the air hose is damaged.
	2.5) Check if the air cotton filter is heavily soiled and the air is blocked.	2.5) Replace the filter if it is heavily soiled.
3. Bottom in contact with the overlay	3.1) Check weight setting.	3.1) Increase weight setting.
	3.2) Check if air leaks from the mattress.	3.2) Replace the air cells if damaged.
	3.3) Check if the air cotton filter is heavily soiled and the air is blocked.	3.3) Replace the filter if it is heavily soiled.
4. Others	Problems other than the above.	Contact the local distributor for handling.

13. Technical Specifications

The Power Unit Specification:

- ♦ Input : AC220-240V,50Hz (OR AC100-120V,60Hz)
- ♦ Power Consumption: 10W max
- ♦ Fuse Rating: T1AL/250V
- ♦ Weight: 1.5Kg (approx.)
- ♦ Dimension: L26cm*W8cm*H13cm
- ♦ Air flow rate : 8 liter/min (approx.)
- ♦ Class I , Type BF

The Air Mattress Specification: (allow different setup for marketing)

Standard equipment :

- ◇ 8” Air cells: 21pcs totally
- ◇ Material: Coverlet : PU membrane / Elastic Fabric
  Air Cells: Nylon/PU
  Base: Nylon/PVC
- ◇ Dimension: L200cm*W90cm*H20.3cm
- ◇ Weight: 8.5Kg (approx.)

2” foam mattress for option

Dimension: L200cm*W90cm*H5cm

Weight 4Kg (approx.)

Temperature & Humidity Limited:

- △ Operating Temperature: 5℃ to 40℃ (41℉ to 104℉)
- △ Transportation Temperature: －10℃ to 45℃ (14℉ to 113℉)
- △ Transportation Humidity: 5% to 95%

Storage Environment

- ☆ Storage Temperature: 5℃~ 45℃ (41℉ to 113℉)
- ☆ Storage Humidity: 10% to 80%

14. Warranty

- The warranty period for the power unit is **12 months** and the air mattress is **12 months** as of the purchase date of the product provided that the product is used in normal conditions. Repair outside the warranty period is subject to charge. The maintenance service for the product is warranted for 5 years. Upon the completion of maintenance outside the warranty period, an additional 6-month warranty period is provided. During this period, the same general terms and conditions of warranty apply.

- Only function failure repair is covered during the warranty period.

  The warranty does not include general maintenance (e.g. replacement of the cotton filter, cleaning), setting adjustment or component renewal.

  The warranty does not cover maintenance conducted by opening the power unit without authorization; careless dropping or use of the product other than for its intended purpose and repair of such is subject to charge.

Warranty Card (TS-508)

Purchase date: _____-_____-_____

Serial No. _____

(Signatures)

Manufactured for:

TRUE SOURCE Technology Co., Ltd.

4F,523,Chung-Chueng Road, Hsin-Tien City,
Taipei Hsien, Taiwan

Tel:+886-2-8667-1780
Fax: +886-2-8667-1782

http://www.truesource.com.tw/air/index_new.asp